Department of LABOR AND INDUSTRIES

ERGONOMICS
Worker Protection

Ergonomics demonstration project: Residential Construction

Need

Musculoskeletal disorders in the construction industry are of particular concern. The construction industry's incidence rate for musculoskeletal injuries is reported as 10.1 per 100 full-time workers (nearly 2.5 times the rate for all industries combined). In Washington State, wood frame building construction is among the top five industries with the highest frequency and rate of claims for overall upper extremity disorders.

Most strategies to control risk in construction are developed by and for large companies—often with the assistance of in-house or contract experts. Smaller companies (as often found in residential construction) typically do not have the personnel or resources to address these problems.

Goals

The goals of the project are to:

- Determine if there are hazardous jobs requiring attention under the ergonomics rule in residential framing and floor work.
- Identify ways to reduce or eliminate these hazards in compliance with the rule.
- Share information from the project with the industry through an education/solutions handbook.

Project design

A researcher from University of Washington coordinated this project. Participating companies agreed to give job site access to the researcher and encouraged employees and subcontractors to allow the researcher to observe their activities and ask questions. The BIAW was helpful in allowing access to its members.

Residential house framing and carpet and hardwood flooring installation jobs were studied through work sampling at different times and on different days of each project. Equipment used to reduce handling requirements was noted for inclusion in a "recommended solutions" handbook.

Three companies agreed to give access to their sites – one framing company and two general contractors. On-site observations were made on a random interval over several months of framing and several flooring installation jobs.

Companies agreed to participate under confidentiality. Permission was later requested to be included as contacts for this demonstration project.

Timetable

February 2000 .....Worked with industry to find interested companies
July 2000 .....Started data collection on residential framers
January 2001.....Started data collection on floor work jobs
May 2001.....Draft report and solutions shared with participants
Fall 2001.....Publish "recommended solutions" to industry

Results

The project will result in three products the entire industry can use to help implement the ergonomics rule:

- This project found that in the residential framing and in floor work, lifting is a consistently hazardous activity, as defined by the ergonomics rule. Lifting equipment available on the market was identified that lessens the amount of hazardous lifting. Examples: boom trucks, wall lifts, crank lifts, carts, hand trucks.
- Forward flexion of the torso (greater than 45 degrees) was classified as hazardous for wall building tasks and for hardwood floor installation. Controls for these hazards are still being evaluated.
- Using the knee as a hammer could also be reduced with existing hand stretchers the carpet layers used as well as power stretchers, which exist elsewhere in industry.
- All the jobs observed had several caution zone risk factors.
- A handbook of recommended solutions that identifies ergonomic risk factors of existing work and types of equipment that decreases the exposure to these risk factors is planned.